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# OVIPOSITION BY TWO *HELICONIUS* SPECIES: COMMENTS ON A PAPER BY DR. A. YOUNG

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*Abstract.*—Corrections and comments are made concerning the paper by A. Young on *Heliconius cydno* and *H. sapho* and their host plants.

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I disagree with a number of observations and with the taxonomy in Young's paper on host-plant relations of *Heliconius cydno* and *sapho* (N.Y. Entomol. Soc. 88, 1980, pp. 217–227). Young places *H. sapho* in the "*melpomene*" group with *H. cydno*. However, the paper cited by Young (Benson et al. 1976) clearly places *H. sapho* with *H. hewitsoni, H. eleuchia,* and *H. congener*. These species are more closely allied with the "*erato*" group as they share the trait of pupal mating (Gilbert 1976). The "*sapho* group" is also known to utilize only the *Astrophea* subgenus of *Passiflora* (Benson et al. 1976), one of which, *P. pittieri,* is widespread in Costa Rican rainforests, from low to middle elevation.

I have cultured *H. cydno, H. sapho* and *H. hewitsoni* in tropical insectaries here in Austin and my students and I have observed these and other species oviposit in the field. *H. cydno* is a generalist (Smiley 1978); ovipositing on most available *Passiflora* in forest understory and in light gaps. It typically lays single eggs but will place two eggs on a shoot when shoots are limited (see Williams and Gilbert 1981). On the other hand, Atlantic side *H. sapho* and its close relative on the Pacific side of Costa Rica, *H. hewitsoni,* are strictly monophagous on *P. pittieri*. This plant has a tree-like growth form but can also be a liana. It grows in spurts punctuated by total absence of new growth. *H. sapho* and *H. hewitsoni* always place clusters on young shoots. In fact, females of these species are very choosy, using only a restricted stage of shoot development. (Beyond a certain point, young larvae would be unable to feed on maturing leaves which are extremely tough in this *Passiflora* species.)

In Costa Rica *H. cydno,* a mullerian mimic of *H. sapho* and its close relative, *H. pachinus,* a mullerian mimic of *H. hewitsoni,* both occasionally oviposit on *P. pittieri* but have a lower per capita survivorship on those

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shoots than the clusterlaying specialist (J. Longino, personal communication).

Young's *Passiflora* identifications require corrections. The individual labelled "*Granadilla* A" (fig. 1B) is unmistakably *Passiflora pittieri* Masters, an Astrophea. The other "*Granadilla* A" (fig. 2A, B) is equally unmistakably *Passiflora ambigua* Hemsl., a common liana in Costa Rican rainforests. *P. ambigua* is a member of *Granadilla* and is a recorded host for both *H. cydno* and *H. pachinus* in Costa Rica (Benson et al. 1976). Both *P. pittieri* and *P. ambigua* lack tendrils as young understory plants and develop tendrils as mature vines. In rearing both of these *Passiflora* from seedlings, I have noticed several consistent features which allow identification. The best character for young plants is the placement of extra floral nectaries. There are typically ½ to ⅔ of the way along the petiole toward the leaf base in *P. ambigua* as can be clearly seen in Young's fig. 2A, B. Extra floral nectaries of *P. pittieri* are conspicuous at the leaf base in unfolded new leaves (Young's fig. 4C) but hidden under the leaf at the apex of the petiole in older leaves (Young's fig. 1B, fig. 3A).

An additional problem concerns the specific identification of these mimetic *Heliconius*. The black and white butterfly depositing "large clusters" on *P. pittieri* is *H. sapho,* not *H. cydno*. For example, fig. 4A, p. 223 show *H. sapho,* not *H. cydno*. The shape of the white fore-wing patch, clearly visible in Young's fig. 4A, is diagnostic of *H. sapho*.

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